# Lives Saved Report:
## Saving 85,000 lives in Sri Lanka

**The impact of complementing WHO's MPOWER with harm reduction and improved lung cancer treatment up to 2060**

**REPORT SUPPORTED BY INTERNATIONAL AND LOCAL TOBACCO HARM REDUCTION EXPERTS**

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# 1. Executive Summary

**GLOBAL PROGRESS TO END SMOKING HAS STALLED. CURRENT APPROACHES TO TOBACCO CONTROL HAVE NOT BEEN SUFFICIENT. THE WORLD HEALTH ORGANIZATION (WHO) PROJECTS THAT 1.27 BILLION PEOPLE GLOBALLY WILL SMOKE BY 2025. OVER EIGHT MILLION ANNUALLY WILL DIE FROM TOBACCO USE. THIS IS UNACCEPTABLE FROM A PUBLIC HEALTH PERSPECTIVE.**

This report focuses on Sri Lanka. A total of 23.2 million people live in this country. Of these, 11,935 die prematurely every year because they use combustible and smokeless tobacco products.

The delay in preventing smoking-related disease, disability and premature deaths calls for urgent action.

Data presented in this report shows that smoking use contributes to several major causes of death in Sri Lanka that are set to increase over the next few decades. These include COPD, heart disease and stroke. They will impose significant human and economic costs.

The report considers how tobacco harm reduction (THR) products could reduce this burden. THR products use nicotine without the deadly exposures that cause harm. THR products (e-cigarettes/vapes, heated tobacco products, snus, oral nicotine pouches, and e-shisha products are rapidly gaining traction among consumers worldwide. But these innovations have not yet been embraced by physicians and governments as key to cutting premature deaths.

The report comes as the quality of evidence on the benefits of smoking cessation and THR has strengthened. Cessation at every age is associated with longer survival, and switching to THR products is almost twice as effective for cessation as nicotine replacement therapies. While long-term studies on the health benefits of switching to THR are still needed, results of studies using biomarkers of future diseases are promising. Biomarkers can play a crucial role in tobacco control, by providing measurable and earlier indicators of exposure to smoking-related toxicants and the potential harm they cause.

This report also comes at a time when many countries have recently reversed bans on many THR products and liberalized their approach to THR. New and innovative THR products are being developed worldwide and its role in smoking cessation and harm reduction well documented. A further sign of growing acceptance of the value of THR and the demand for them by consumers.

St. Kitts and Nevis provides an important example of a government recognising the public health value of integrating harm reduction into its tobacco control policy. The former Prime Minister and current Trade Minister, Dr. Denzil Douglas stated in New York during the September 2024 New Approaches conference:

"Research clearly supports the harm reduction potential of non-combustible nicotine products. According to Public Health England, vaping is estimated to be about 95% less harmful than smoking. Similarly, heated tobacco products, which heat tobacco rather than burn it, produce significantly lower levels of harmful toxins compared to traditional cigarettes. Harm reduction



is not a compromise—it is a critical and compassionate part of tobacco control that recognizes the reality that millions of people continue to smoke, despite knowing the risks. The WHO Framework Convention on Tobacco Control (FCTC) gives us the tools to address this challenge, but we must act with a comprehensive strategy that includes harm reduction at its core. We cannot afford to ignore the evidence. By embracing harm reduction as a core component of the FCTC, we could save millions of lives, reduce healthcare costs, and create a future where far fewer people suffer from the devastating consequences of smoking."

During the same conference, Jindřich Vobořil, a leading expert on drug use related issues in Czechia and a former Czech National Drug Coordinator, spoke about a Czech Government Programme Statement from March 2023. This statement shared that, “in addressing the issue of addiction, [Czechia] will apply a policy based on a scientifically proven and balanced approach of risk prevention and harm reduction ... regulating psychoactive substances in accordance with their level of harm.” To this, Mr Vobořil added, “... we can see what actually works in reducing risks. It’s not prohibition and it’s not a fully liberal market - it’s some type of clever and well thought through scientifically-based regulations.” The acknowledgement of risk-proportionate regulations on a national policy level, and the acknowledgement of their effectiveness, is an important step forward.

We note that the use of THR products is restricted in Sri Lanka. Vaping products are essentially banned but regulated as if tobacco and heated tobacco products (HTPs) are banned while there are no specific regulations for oral nicotine pouches and snus. Nicotine replacement therapy is available in pharmacies but marketing of NRTs is banned. Therefore, the expanded use by those people who smoke and cannot or do not want to quit, remains disappointingly low. Health gains would be greatly increased, if smoke free nicotine alternative products were to be made more accessible, affordable and acceptable.

We calculated the combined impact of embracing THR, better cessation services, and improved lung cancer treatment in Sri Lanka on long term trends in health.

**The analysis shows that over 85,000 lives could be saved by 2060 through these interventions, compared to continuing with current WHO-directed tobacco control efforts alone.**

**Figure 1: Sri Lanka adult smoking rates by sex**

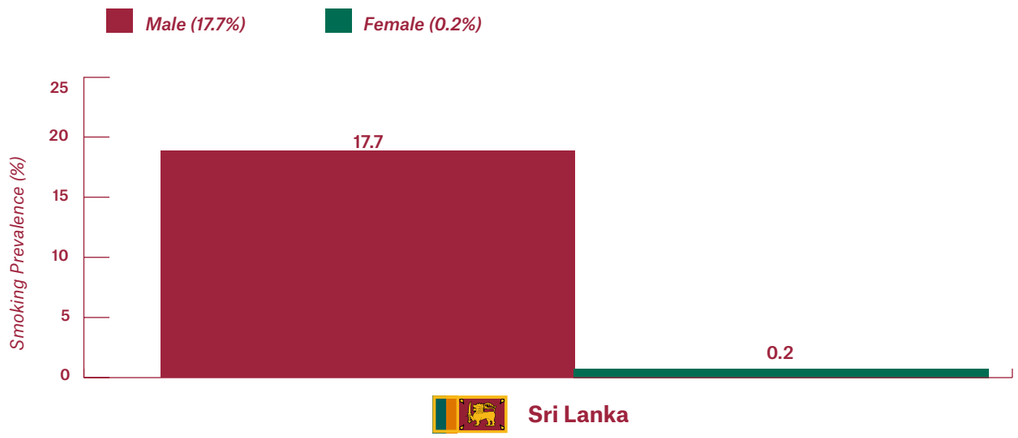
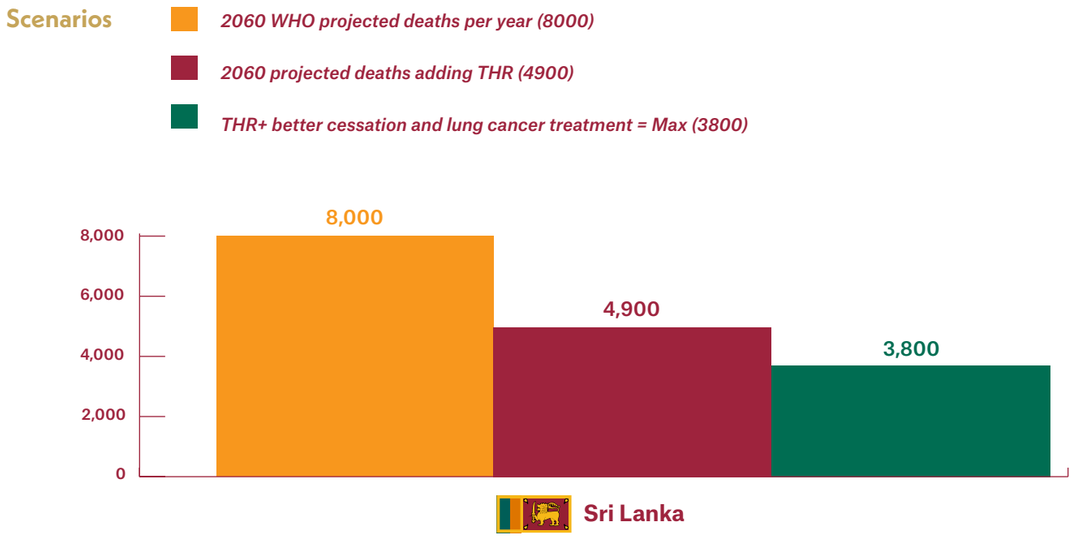



**Figure 2: Decrease in tobacco-related deaths, if THR were implemented in Sri Lanka along with improved cessation and early diagnosis of lung cancer**






**To achieve these gains, key actions are needed, including:**

- **Activating health professionals** (especially physicians) to communicate the benefits of THR to patients in all clinical encounters, to counter disinformation about nicotine and the value of THR, and to develop national equivalents of the Royal College of Physicians report on THR and smokefree nicotine alternatives to provide guidance to physicians.

- **Encouraging risk-proportionate regulation:** Governments should embrace the role of harm reduction in tobacco control, as mentioned in Article 1(d) of the FCTC. They should integrate THR into broader national approaches to harm reduction by continuing to revise legislation and taxation to improve access to THR products and invest in national science and research to guide and advance THR.

- **Strengthening consumer representation:** Strengthen the role and effectiveness of independent science-based consumer groups who advocate for THR progress and do so in an integrated way with other major national harm reduction advocacy and consumer groups.

Embracing THR, cessation, and improved lung cancer treatment represents a major opportunity for Sri Lanka to dramatically improve the health of their population and demonstrate global health leadership.

# 2. Rationale

## GLOBAL PROGRESS TO END SMOKING HAS STALLED

Current approaches to tobacco control have stalled. The World Health Organization (WHO) projects that 1.27 billion people globally will smoke by 2025,[1] and that tobacco use will kill 8.7 million annually.[2] Deaths are projected by WHO to increase to 10 million in five years before declining to about 6.5 million by 2060.[3] This is not what public health success looks like.

Sri Lanka has an adult daily smoking prevalence of 17.7% in men and 0.2% in women – showing a high rate as well as a wide gender difference.[4] This report aims to provide an alternative vision of what is possible. We consider the benefits of interventions based on tobacco harm reduction (THR) products, which include nicotine without the deadly exposures that cause the harms. As stated in a recent article by 15 past presidents of the Society for Research on Nicotine and Tobacco, "Nicotine is the chemical in tobacco that fosters addiction. However, toxic constituents other than nicotine, predominantly in smoked tobacco, produce the disease resulting from chronic tobacco use." [5]

These products include vapes, oral nicotine pouches, snus, e-shisha and heated tobacco products. They are gaining traction by consumers but are not yet embraced by physicians and governments as key to cutting premature deaths. We also consider the benefits of better treatment for lung cancer, knowing it accounts worldwide for 2.5 million cases and 1.8 million deaths a year.[6]

Although the Sri Lankan healthcare system might not be as advanced in regularly updating its cancer diagnostic and treatment programs, the use of emerging technologies, such as AI-assisted (artificial intelligence) diagnostics, might assist the country to address oral cancer in a more effective manner.


## WHO NEGLECTS THE LIFE-SAVING POTENTIAL OF TECHNOLOGICAL INNOVATION

The WHO Framework Convention on Tobacco Control (FCTC) is the first international treaty negotiated under the auspices of WHO. FCTC has led international control efforts for over two decades. Decisions taken at its governing body's 2024 gathering (known as COP10) focused on a variety of worthy issues, including environmental effects of tobacco cultivation and cigarette filters, and guidelines for tobacco advertising and media promotion.[7] However, COP10 did not have substantive, potentially life-saving discussions on tobacco harm reduction (THR). Nor did it address the role of innovation and technology improvements that could reduce tobacco harms, and the need to adapt policies as these become available.[8]

The omission of a focus on THR has two unfortunate implications. First, it perpetuates a view among public health experts that innovation and new technology is irrelevant to ending smoking. Second, it implies that equity in access to effective, life-saving technologies does not matter in tobacco control. That partly explains why access to nicotine replacement therapies (NRT) remains paltry across LMICs.[9] This is despite NRTs having been included on the WHO Essential Drug List in 2009.[10]

We have seen remarkable progress across the fields of biotechnology, pharmaceutical innovation and diagnostics led by private companies and supported in part by leading health research funders like the U.S. National Institutes of Health (NIH). The result is that a range of THR products have met the United States Food and Drug Administration (USFDA) criteria of being "appropriate for the protection of public health."[11] To date, the FDA has authorized marketing of 45 products, including 39 tobacco- and menthol-flavoured e-cigarette products and devices. They include four major categories: heated tobacco products, e-cigarettes, snus, and oral nicotine pouches.[12] All of them use nicotine. None involve combustion. All substantially reduce exposure to the toxic substances in combustible cigarettes.[13,14]

In the Middle East one new addition, a charcoal-free shisha, represents a unique potential contribution to tobacco harm reduction led by Middle East innovation.[15,16]

# 3. Benefits of Tobacco Harm Reduction (THR)

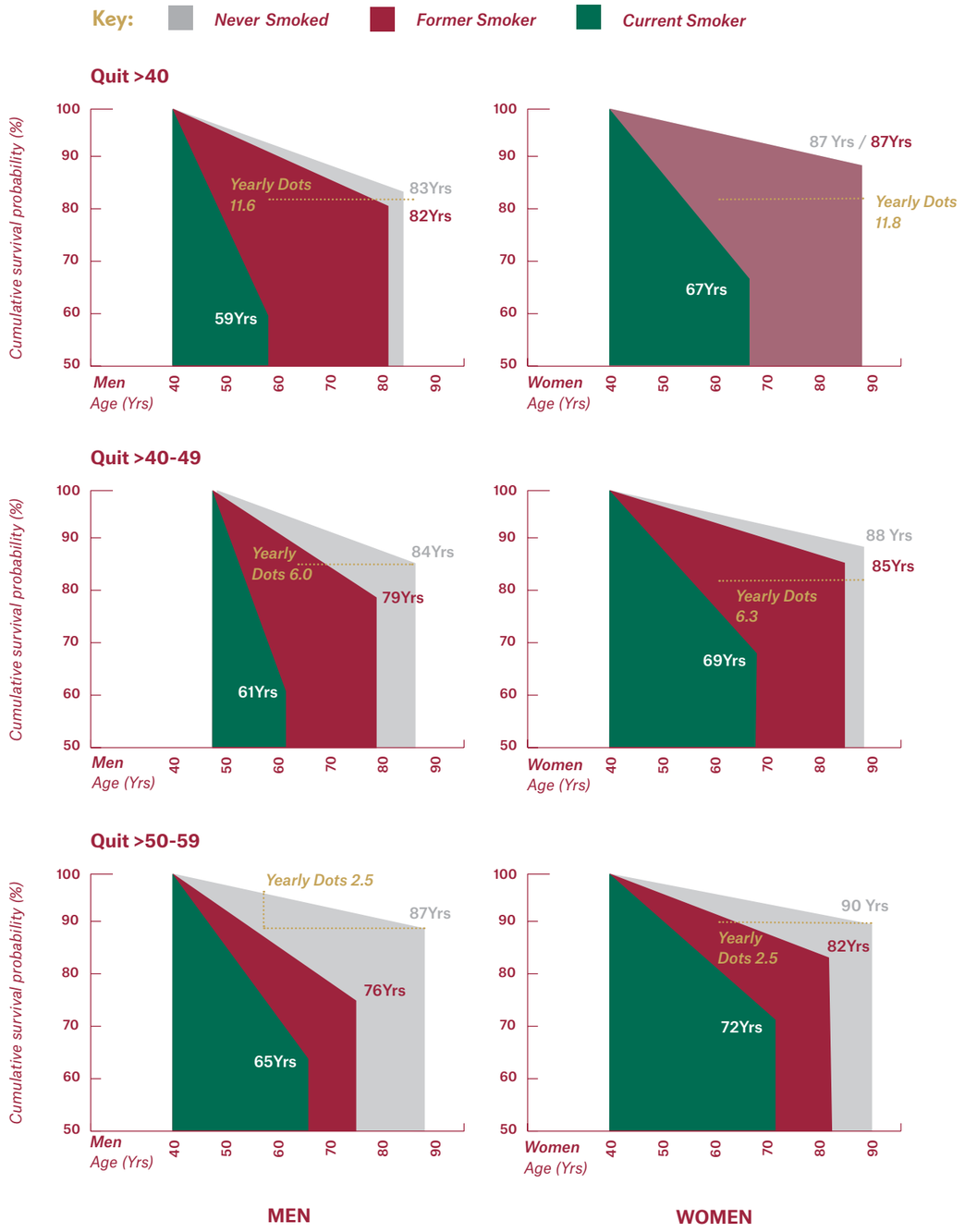
## THE QUALITY OF EVIDENCE REGARDING THE BENEFITS OF THR FOR CESSATION AND HARM REDUCTION HAS STRENGTHENED

In recent months, leading medical journals have published views that support the value of smoking cessation and tobacco harm reduction.

Cho and colleagues, writing in NEJM Evidence,[17] draw on four national cohorts involving 1.48 million people followed for 15 years to produce updated data on the benefits of adult cessation by age. They state that "Cessation at every age was associated with longer survival, particularly cessation before 40 years of age."[18]

Cho et al. show no differences in survival between men and women who never and formerly smoked before age 40, compared to a decade difference among those who quit between 50-59. Note that in the older age group, former smokers still show a decade advantage in survival compared to current smokers. No other public health interventions can achieve this for people at age 50.

**Figure 3: Life expectancy gains by age in men and women**
This figure shows an Illustrative model, based on the article by Cho et al, NEJM Evidence, 2024[18]



Pair this with a Korean study from JAMA Network Open, focused on cancer risk following cessation. Almost three million people were followed for over 15 years. Regardless of quitting age, a significant reduction in cancer risk was observed.[19]

The Lancet[20] and the ***New England Journal of Medicine***[21] each recently carried articles calling for a greater focus on the value of THR for cessation. Beaglehole and Bonita (both previous directors of chronic diseases at WHO), writing in The Lancet, make the case for WHO to adopt THR to save lives. As they note, ***"The FCTC does not prohibit harm reduction approaches but leaves it up to countries to decide how to regulate e-cigarettes and other novel nicotine products."*** Further, ***"WHO's lack of endorsement of tobacco harm reduction limits healthier choices for the 1.3 billion people globally who smoke and who are at an increased risk of early death."***

Nancy Rigotti of Harvard Medical School, writing in the NEJM, suggests that we have reached a ***"tipping point"*** in the quality of trial evidence, that requires physicians to ***"acknowledge this progress and add e-cigarettes to the smoking cessation toolkit."***

Why does this matter for THR? Multiple studies, and Cochrane systematic reviews,[22] conclude that e-cigarettes (vapes) are almost twice as effective at achieving cessation than NRTs. In short, current evidence suggests that e-cigarettes are the most widely available effective means for smokers to quit. Cho et al.'s comments in the NEJM about the benefits of smoking cessation at every age do not differentiate between cessation methods; they apply to quitting with THR products or with NRTs.

More studies are needed to thoroughly assess the effectiveness of snus, nicotine pouches, and heated tobacco products as cessation interventions. Further, there is a major gap in knowledge about how to reach those who smoke, who are older than 40 years of age, and smoke heavily (more than 20 cigarettes a day). The recent WHO guidelines on cessations ignore the potential health gains that addressing this group of smokers would achieve.[23]

Older and heavier smokers constitute about 20-25% of all adult smokers yet account for over 70% of all lung cancer and COPD cases. Manufacturers of THR products have also not addressed these smokers tending to focus on younger, lighter smokers.[24]

Table 1 shows the current state of play regarding clinical trials, cessation and all major THR categories.  It shows that RCTs and solid evidence about the effectiveness of cessation is strongest from e-cigarettes, research is underway in other categories.



**Table 1: Status of randomised clinical trials (RCTs) to assess the effectiveness of THR for cessation**

| | |
|---|---|
| **E-CIGARETTES (VAPES)**<br>Several RCTs have been completed allowing for a continuously updated systematic review by the Cochrane Collaboration. | **Electronic cigarettes for smoking cessation - Lindson, N - 2024 \| Cochrane Library** |
| **ORAL NICOTINE POUCHES**<br>No systematic review.<br>Several studies are in progress. | **Project 3: Randomized Placebo-Controlled Trial of Nicotine Pouches in Smokers - Penn State (psu.edu)** |
| | **Clinical Study Protocol on Electronic Cigarettes and Nicotine Pouches for Smoking Cessation in Pakistan: A Randomised Controlled Trial - PMC (nih.gov)** |
| | **Using Pod Based E-Cigarettes and Nicotine Pouches to Reduce Harm for Adults with Low Socio-economic Status Who Smoke: A Pilot Randomized Controlled Trial \| Nicotine & Tobacco Research \| Oxford Academic (oup.com)** |
| | **JMIR Research Protocols - Biomarkers of Exposure and Potential Harm in Exclusive Users of Nicotine Pouches and Current, Former, and Never Smokers: Protocol for a Cross-Sectional Clinical Study** |
| **SNUS**<br>No systematic review but there are several completed studies. | **Randomised Trial to Compare Smoking Cessation Rates of Snus, With and Without Smokeless Tobacco Health-Related Information, and a Nicotine Lozenge \| Nicotine & Tobacco Research \| Oxford Academic (oup.com)** |
| | **Randomised Clinical Trial of Snus Versus Medicinal Nicotine among Smokers Interested in Product Switching \| Tobacco Control (bmj.com)** |
| | **Randomised Clinical Trial of Snus Examining the Effect of Complete Versus Partial Cigarette Substitution on Smoking-Related Behaviors, and Bio-Markers of Exposure \| Nicotine & Tobacco Research \| Oxford Academic (oup.com)** |
| **HEATED TOBACCO PRODUCTS**<br>One study published with an update to 24 weeks being completed. | **Comparing the Effectiveness, Tolerability, and Acceptability of Heated Tobacco Products and Refillable Electronic Cigarettes for Cigarette Substitution (Ceasefire): Randomised Controlled Trial - PMC (nih.gov)** |

The United States' FDA has granted "modified risk tobacco product" status to some oral and heated tobacco products based on submitted scientific evidence.[25] Real-world evidence also exists, including meaningful reductions in cigarette smoking in countries such as Sweden and Japan due to switching to THR products.[26] Because these are newer technologies, we do not have studies on long-term effects of switching to THR products. In the meantime, we can look to the plethora of impressive studies using biomarkers of outcomes that have high predictive value for cancers, respiratory and heart disease.[27,28,29] These studies are used by companies in their USFDA applications and deserve to be cited and used more extensively by the public health community when motivating policy makers.

## COUNTRY-SPECIFIC STUDIES OF LIVES SAVED ARE NEEDED TO DRIVE FOR NATIONAL CHANGE.

Across diverse disciplines, there is a long history of using rigorous methods to provide data on alternative futures.[30] Such ***"foresight studies"*** provide policy makers and the public a compelling vision of a future that is better than the status quo and is possible through the application of knowledge and interventions available today. We apply such an approach to show that it is possible to influence the course of the tobacco epidemic.





# 4. Analysis of key indicators in Sri Lanka

Sri Lanka has a population of 23.3 million. Around 3.4 million adults smoke, and 12,000 people die prematurely every year from combustible tobacco and toxic smokeless tobacco products.[31,32] GDP per capita in Sri Lanka is $3,828. Life expectancy for men is 74.5 years and 80.5 years for women.[33]

**Table 2: Demographic and development data for Sri Lanka**

| | Sri Lanka |
|---|---|
| GDP/capita in thousands $ | 3.8 |
| Literacy Rate | 98% |
| Population in millions | 23.2 |
| **Life Expectancy (Males/Females)** | |
| MALES | 74.5 |
| FEMALES | 80.5 |

***Data source: population, schooling life expectancy source:*** IMHE country profiles. *https://www.healthdata.org/research-analysis/health-by-location/profiles*
***GDP/capita source: World Bank*** *- https://data.worldbank.org/indicator/NY.GDP.PCAP.CD*

**Table 3: Top ten risks underpinning death, disease, and disability in Sri Lanka**[34]

**Sri Lanka**

| Rank (2021) | |
|---|---|
| 1 | High fasting plasma glucose |
| 2 | High BP |
| 3 | Diet |
| 4 | Air Pollution |
| 5 | High BMI |
| 6 | Tobacco |
| 7 | Kidney Dysfunction |
| 8 | High LDL |
| 9 | Malnutrition |
| 10 | High Alcohol Use |

* High BP = High body pressure
High BMI = High body mass index
High LDL = High low-density lipoprotein

Table 3 shows that tobacco use features as one of the top ten risks in Sri Lanka. Diet-related and clinical factors related to chronic disease feature strongly as major risks driving the burden of disease, with high fasting plasma glucose as the top risk.

**Table 4: Smoking rates and numbers of smokers in Sri Lanka**[35]

**Sri Lanka**

| Smoking Prevalence (%) | |
|---|---|
| MALES | 17.7 |
| FEMALES | 0.2 |
| WHO estimated 2025 prevalence | 7.7 |

*Note that there are very large differences between the male and female smoking rates.*

*The opportunity to ensure that women maintain such low rates demands greater support to efforts to promote their behaviour as the desired social and health goals. Industry should be required to show that they are not marketing any tobacco or related products to women in much the same way they are required to do this for youth.*

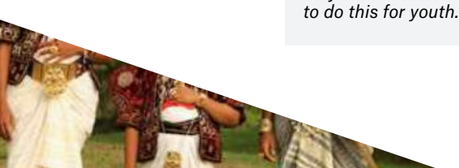
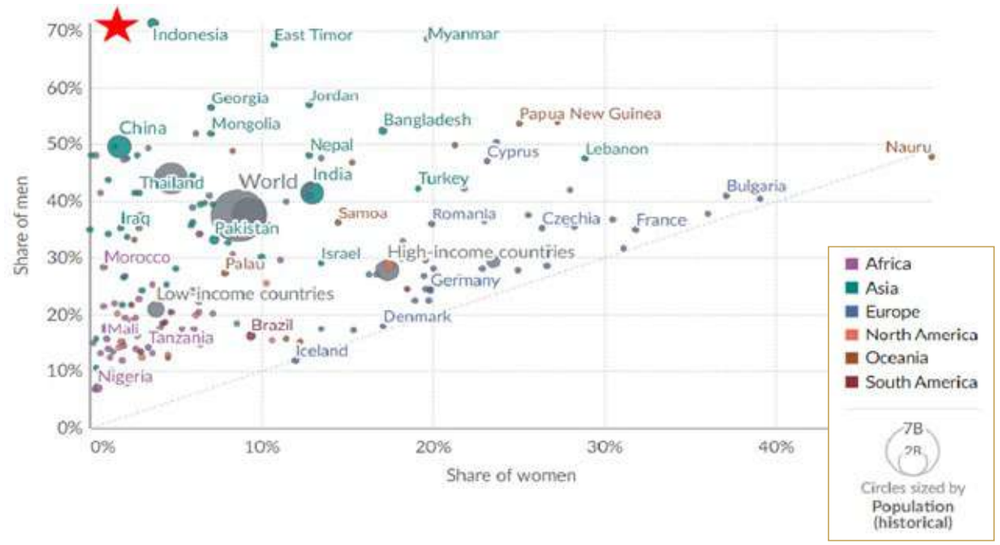




**Figure 4: Smoking in men vs. women, 2020**




***Data source:*** *World Health Organization (Via World Bank)*

**Table 5: Legislation and taxation of tobacco use and harm reduction products in Sri Lanka**

Sri Lanka

| Product | Sri Lanka - Legislation | Sri Lanka - Taxation |
|---|---|---|
| Cigarettes | Strict regulations including advertising bans and smoke-free zones | High excise taxes: 80% of retail price is tax |
| Smokeless tobacco/areca nut | Banned since 2015 | Not applicable |
| Vapes | Regulated; sales restricted to adults only | Moderate taxation: specific duty applied |
| Heated Tobacco Products | Prohibited | N/A |
| Nicotine Pouches | Restricted sale; only available in pharmacies | Low to moderate taxation |

**Table 6: Top ten causes of death in 2021 in Sri Lanka (IHME). Those strongly related to tobacco are in bold[36]**

Sri Lanka

| Rank (2021) | |
|---|---|
| 1 | **Stroke** |
| 2 | **Ischaemic Heart Disease (IHD)** |
| 3 | COVID-19 |
| 4 | Diabetes |
| 5 | **COPD** |
| 6 | CKD |
| 7 | Alzheimers |
| 8 | HHD |
| 9 | Self-harm |
| 10 | Lower RI |

* COPD = Chronic obstructive pulmonary disease
CKD = Chronic kidney disease
HHD = Hypertensive heart disease
Lower RI = Lower resistive index (blood vessels)

In Sri Lanka, smoking is a major cause of chronic obstructive pulmonary disease (COPD), ischaemic heart disease (IHD) and stroke. The table shows the importance of other important risks: the impact of COVID 19, alcohol and diet. This triple burden of diseases strains the ability of health systems. These conditions lead to significant disability and reduced quality of life for many individuals.

## THE IMPORTANCE OF SMOKELESS TOBACCO AND ARECA NUT PRODUCTS

Sri Lanka has a long-standing tradition of using smokeless tobacco and areca nut (betel nut) oral products, particularly in the form of betel quid chewing, which remains prevalent among adults: 34% of those aged 34–44 and nearly 48% of those aged 65–74.[37] While only about 4.6% of a recent sample reported combined tobacco and areca nut use, these habits are deeply rooted in culture and daily life.[38] The psychoactive properties of both substances make quitting difficult, with addiction cited as a major barrier.[39] The health impact is significant: oral cancer rates in Sri Lanka are among the highest in the region, with oral-pharyngeal cancers accounting for over 15% of all reported cancers and leading in cancer-related mortality.[40]

Economically, areca nut cultivation is vital for rural livelihoods. Small-scale farmers depend on it as a cash crop, often intercropping it with coconuts and bananas.[41] In 2022, Sri Lanka produced about 67,000 tons of areca nuts, making it the fifth-largest producer globally.[42,43,44] The crop contributes significantly to export earnings and rural incomes, with value-added products fetching high prices in both local and international markets.[45,46]

**The health economic impact of smoking in Sri Lanka is substantial:**

1. **Healthcare Costs:** Smoking-related diseases contribute significantly to healthcare expenses. Treating conditions such as stroke, lung cancer, chronic obstructive pulmonary disease (COPD), and cardiovascular diseases places a heavy financial burden on the healthcare system.[47]

2. **Productivity Loss:** Smoking leads to premature deaths and disabilities, resulting in lost productivity. This affects the workforce and economic output, as individuals are unable to work or perform at their full capacity.[48]

3. **Direct Spending:** Sri Lankans spend approximately **520 million rupees** on cigarettes per day. [49] This expenditure represents a significant portion of household income, which could otherwise be used for essential needs like education and healthcare.

4. **Non-Communicable Diseases (NCDs):** Smoking is one of the major risk factors for NCDs in Sri Lanka, which further exacerbates economic hardships due to increased healthcare costs.

**NOTABLY, STROKE, IHD AND COPD MAKE THE TOP TEN CAUSES OF DEATH IN SRI LANKA**

## Calculating the "size of the price": the aim

This study aims to provide national policymakers and public health experts with estimates of the value of THR, better cessation programmes, and improved access to lung cancer diagnostics and treatment in terms of measured as "lives saved" over the next three to four decades.





# 5. The Approach

We compare WHO projections of future tobacco deaths by 2060. These are based on continued and more effective implementation of the key components of the WHO Framework Convention on Tobacco Control (FCTC), simplified into six policy measures labelled collectively as MPOWER. Disappointingly, tobacco harm reduction (THR) was omitted from the MPOWER [50] approach. The WHO projections also leave out potential improvements in the effectiveness of cessation services, as well as access to rapidly improving diagnostics and treatments for lung cancer. We focus on lung cancer for two reasons. It accounts for 2.5 million of the 8.5 million tobacco related deaths, and better diagnostics and treatment suggest that within a decade, lung cancer will no longer have a five-year survival of about 10-20% but approach the survival rate of breast cancer which has reached 90%.

Smoking-related diseases are chronic conditions that take a few decades before the full benefits of cessation or harm reduction are visible in national data. This is a critical point to appreciate. Recent updates on the value of cessation (as described above) show that policy makers have overestimated how long it takes to achieve benefits from adult cessation: in terms of reduced overall mortality and in deaths from major tobacco related cancers.

All the expected premature tobacco deaths by 2060 will occur in current adult smokers. If no person under 18 years of age started smoking today, lives saved among youth would take until the 2060s to become visible in national mortality data. This reinforces the need to focus on the behaviours of middle-aged smokers and users of toxic smokeless tobacco products, if we seek population health gains within the next several decades. Many of these smokers will be in touch with health services for early-stage COPD, heart disease and possible cancer. This creates opportunities for secondary prevention.

### RECENT APPROACHES TO ESTIMATING "LIVES TO BE SAVED"

There have been several recent efforts to model responses to the question: "What would happen to the burden of disease if countries did embrace THR?" These have been published by academics and industry. We refer readers to our earlier report to obtain details - "Lives Saved: Integrating Harm Reduction for Tobacco Control in Brazil" (tobaccoharmreduction.net)[51] and "Lives Saved: Tobacco Control & Harm Reduction in LMICs" (tobaccoharmreduction.net).[52]

Leading decision makers and advisors to governments routinely use such "what if" counterfactual approaches to policy development. Philip Tetlock's four decades of such work has prevented wars, improved COVID outcomes, and led to innovations across many sectors.[53]

### WHY THIS STUDY IS IMPORTANT NOW

This study comes at a time when over a billion people smoke and THR products are used by 120-140 million people globally. Most people who use THR products live in high income countries. In these countries we now have powerful evidence of the impact of THR use on the declining use of combustibles. This has been well described for countries such as Sweden, UK, Japan, and USA.[54] We believe that when faced with a clear choice of policies, responsible governments will act to save lives and be supported by civil society.

## METHODS

The approaches used by seasoned **"modellers"** were reviewed and simplified to their essential elements. Details are contained in earlier reports. The key assumptions are repeated below.

## ASSUMPTIONS

The following assumptions are made in calculating lives saved.

- **At present, NRTs are 10% effective in terms of cessation at one year. Vapes are twice as effective.** [55A]
- **The spectrum of THR products reduce toxic exposures by 80% and reduce smoking-related causes of premature death by 70%.** [55B] **These conservative values for comparability are used knowing the emerging evidence from exposure assessments and the use of bio-markers of outcome, show that far greater levels of reduced harm are likely.**
- **Lung cancer survival at five years will increase to 50% for most countries by 2050 driven by improvements in diagnosis and treatment.** [55C]
- **WHO estimates that cessation services (a mix of medications and behavioural support) will be 50% effective in achieving one-year quit rates by 2035 and be available to 50% of smokers by 2045. This effectiveness projection is not aligned with research findings, but for the purpose of this study, it has been accepted as a "best case assumption."**[55D]
- **The rate of decline in smoking will accelerate from 2035 onwards, which will lead to health impacts increasing sharply from 2045 onwards.**
- **WHO trends suggest that from 2000 to 2025 smoking rates will fall by a third in men.** [55E] **We believe this could accelerate to 50% from 2030 in all countries.**

## ESTIMATES FROM ABOVE ARE USED TO MODEL THREE SCENARIOS

**SCENARIO 1:** Status quo (traditional tobacco control). Current trends using WHO estimates. The WHO estimate of a 35% decline in global tobacco deaths from the peak of 10 million[56] is used as the basis for calculating country-specific estimates.

**SCENARIO 2:** Tobacco control + Implementation of THR policies and availability of THR products. Trends that include THR uptake assume that, as a group, they will lead to a 56% decline in tobacco deaths and will become available increasingly from 2035.

**SCENARIO 3:** Tobacco control + THR uptake + Improved access to diagnostics and treatment of tobacco-related diseases. Trends that include THR and better access and use of diagnostics and treatments (focused mainly on lung cancer, which killed an estimated 1.8 million people in 2020).[57]

The differences between the WHO projections and those where THR alone, and THR with other measures were calculated assume a linear relationship between lives saved over the decades.



## NOTE ABOUT THE QUALITY AND AVAILABILITY OF DATA

The quality of evidence used to develop THR policy needs to be methodologically sound. Polarization within the field of tobacco and nicotine science threatens the integrity of research.[58] Recent reviews of epidemiological and toxicological research related to THR have highlighted a range of basic concerns about methods used.[59,60,61,62]

Common issues include unclear hypotheses or methods not appropriate to test stated hypotheses; unsupported claims of causality; not controlling for potential confounding variables; amounts of product exposure not standardized or specified; non-representative study participants; and not considering effects of participants' previous combustible tobacco use.

Laboratory studies testing new technologies (such as vaping and heated tobacco devices) often use poorly reported or non-reproducible methods, under conditions incompatible with real-world use. Some papers have been formally retracted. Unfortunately, critiques and retractions cannot stop sloppy or slanted science from being repeatedly cited and potentially misleading policy makers, physicians and consumers.

# 6. Potential Lives Saved by THR in Sri Lanka

Table 7 contains the output of the expert analysis to calculate the number of lives to be saved between 2020 and 2060 if THR and related measures are implemented. These numbers represent the additional gains, beyond those WHO estimates, that will occur because of the roll-out of MPOWER. They represent a significant number of premature deaths. Two scenarios are listed: the first includes accelerated access to THR products, while the second also includes better access to more effective nicotine replacement therapies (NRTs) and better access and treatment of lung cancer.

These numbers are indicative of what could happen if governments, health professionals, industry and consumers aligned on policies and actions. Failure to do so will leave the WHO projection in place. It was beyond this report to calculate the impact on disease and disability or the economic benefits of THR. That requires a separate, more detailed set of analyses ideally led by countries.

Note that there is a growing body of evidence that shows that nicotine itself could well be beneficial for a range of neurological conditions[63,64] of which Parkinson's Disease is a notable one. This disease is projected to have a major devastating impact across all countries over the next decades.[65] Better treatments are therefore a high priority. Of the lives saved using a background of no action, 50% will occur due to MPOWER strategies and an additional 50% due to THR, better cessation, and management of lung cancer.

**Table 7: Smoking related deaths and lives saved from 2020-2060 through tobacco harm reduction, better cessation, and lung cancer treatment**

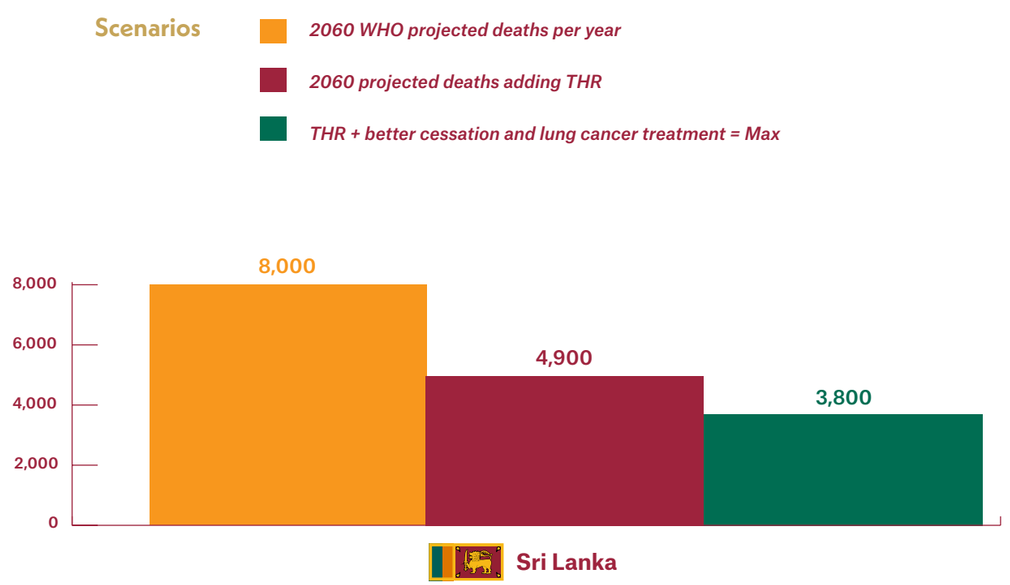
**Sri Lanka**

| Annual Deaths from Tobacco (Thousands) | |
|---|---|
| 2023 | 11.9 |
| 2060 WHO projected deaths per year | 8 |
| 2060 projected deaths adding THR | 4.9 |
| THR+better cessation and lung cancer treatment = Max | 3.8 |
| **Lives Saved** | |
| 2020 - 2060 total deaths - THR | 82,000 |
| 2020 - 2060 total deaths - THR plus cessation | 85,000 |



**Figure 5: Projected deaths from tobacco in 2060**

This figure shows the number of tobacco deaths expected to occur in 2060 using three scenarios: WHO projections using FCTC and MPOWER measures; WHO projections adding THR products; and WHO projection adding THR, smoking cessation and, lung cancer innovations.



**85**

**THOUSAND**

A total of 85,000 lives could be saved in Sri Lanka if tobacco harm reduction products were made widely available, if better cessation services were developed, and if better treatment for lung cancer was introduced over the next four decades. This represents a major opportunity for Sri Lanka to improve the health of their populations.





# 7. Potential Lives to be Saved in other countries

Along with the report on Sri Lanka, our reports show by integrating tobacco harm reduction into traditional tobacco control measures, countries can drastically cut tobacco-related deaths. Millions of lives can potentially be saved through less harmful smoke-free nicotine alternatives. The countries shown in figure 6 have a significant number of people who smoke. If these countries were to embrace THR, better cessation, and more effective treatment for lung cancer, we estimate that 14 million lives would be saved over the next decades. Note these are over and above lives to be saved by continuing with WHO's current programs alone.

**Figure 6: Potential Lives Saved by Integrating THR into Tobacco Control**


## WHAT ACTIONS ARE NEEDED TO SAVE LIVES?

**Key actions needed include:**

A. **Activating health professionals (especially physicians)** to communicate the benefits of THR to patients in all clinical encounters, to counter disinformation about nicotine and the value of THR, and to develop national equivalents of the Royal College of Physicians report on THR and vapes.

B. **Encouraging risk-proportionate regulation:** Governments should continue to revise regulations to improve access to less harmful nicotine / THR products and invest in national science and research to advance THR. Cigarettes should be substantially more heavily regulated and taxed than reduced risk products. That makes it easier for consumers to switch and improve their health.

C. **Strengthening consumer representation:** Creating and strengthening independent, science-based consumer groups able to advocate for their needs, based on sound science.

Embracing THR, cessation, and improved lung cancer treatment represents a major opportunity for Sri Lanka to dramatically improve the health of its populations.

## A. ACTIVATING HEALTH PROFESSIONALS (PHYSICIANS IN PARTICULAR)

Activating physicians would counter disinformation about nicotine and emphasise the value of THR. Physicians need to communicate the benefits of THR to patients in all clinical encounters. Drawing on the groundbreaking approaches used 60 years ago by the Royal College of Physicians, they should help lead policy development by publishing a major report on the state of smoking and the role of THR in preventing and controlling tobacco-related disease, disability and premature death.

### PHYSICIANS SHOULD COMMUNICATE THE BENEFITS OF THR TO PATIENTS AND COUNTER DISINFORMATION.

Physicians led the early years of tobacco control in the UK and the USA. They were the subjects of the earliest cohorts that showed that smoking kills.[66] They galvanised reports[67] that led to the first government actions. Doctors quit in large numbers once they understood the evidence, though this varied by region.[68] They started cessation services for their patients, and they led the development of public health policies to end smoking.

A new 16-country survey on trust and health,[69] found that physicians remain the most trusted source of information. Physicians can be at the forefront of accelerating the demise of smoking and reducing tobacco-related disease, disability, and death – if encouraged to communicate harm reduction strategies to their patients. This needs to start with correcting the massive extent of disinformation. In a 2022 survey of 15,335 physicians in 11 countries, 77% incorrectly believed that nicotine causes lung cancer.[70] However, on average over 80% of physicians were at least moderately interested in receiving training in cessation and THR.[71]

Little information is available specifically to physicians in Sri Lanka. More studies to identify the distinctive perceptions and knowledge of doctors in Sri Lanka are needed. However, the respected polling firm Ipsos recently surveyed nearly 27,000 cigarette smokers in 28 countries, not including Sri Lanka.[72] This study showed that a significant percentage of physicians are past smokers, and that the majority of physicians incorrectly believe that nicotine is a direct cause of various smoking-related ailments, such as lung cancer, chronic obstructive lung disease (COPD), atherosclerosis. More specific studies are needed of physician perceptions in Sri Lanka.

### PHYSICIANS SHOULD ADDRESS MISSED OPPORTUNITIES FOR SECONDARY PREVENTION AMONG PATIENTS WHO SMOKE.

Millions of people are diagnosed with conditions such as COPD, IHD, early-stage cancer, stroke and other tobacco-related diseases every year in Sri Lanka. In other neighboring countries, such as Indonesia, more than 70% of people with these conditions smoke at the point of diagnosis. A year or two after diagnosis, international research suggests that most still smoke. Tobacco cessation is either not attempted or fails. This accelerates clinical decline and substantially adds to the burden of disease and suffering experiences by patients. Physicians should review national data on this and implement programs that give high priority to cessation and access to harm reduction at every clinical encounter.





### MEDICAL AND HEALTH EXPERTS SHOULD BE ENCOURAGED TO DEVELOP A NATIONAL EQUIVALENT OF THE ROYAL COLLEGE OF PHYSICIANS REPORT ON E-CIGARETTES AND HARM REDUCTION.

Over 60 years ago[73] the Royal College of Physicians published the first major report on the harm of smoking. Their voice over the decades has led policy development in the UK and around the world. Earlier this year they released their latest evidence review on e-cigarettes and harm reduction.[74] It is led by physicians and is meant to aid physicians in "how e-cigarettes can be used to support more people to make quit attempts while discouraging young people and never-smokers from taking up e-cigarette use." An equivalent report for Sri Lanka, that was led by prestigious medical societies and academies could galvanise needed action. Ideally, this should be a project endorsed and facilitated by the Ministry of Health.

## B. GOVERNMENTS SHOULD CONTINUE TO REVISE AND ESTABLISH RISK-PROPORTIONATE REGULATION, TO IMPROVE ACCESS TO THR PRODUCTS AND INVEST IN NATIONAL SCIENCE AND RESEARCH TO ADVANCE THR

The Sri Lankan government should be encouraged to regulate alternative nicotine products proportionate to the risk they pose to health and in ways that maximise benefits and make healthier choices as easy as possible.

Preferably, the Government's regulatory progress needs to be accompanied by extensive and continuous communications programs that engage leaders in healthcare and adults who use tobacco products. The regulations should aim to balance consumer access with public health concerns, particularly focusing on preventing youth uptake while allowing adult smokers access to THR alternatives.

Good regulatory practice needs to be studied. For example, the United Kingdom approach aimed at cutting social class gradients in adult smoking through use of THR products[75]. In this world-first government-sponsored scheme, smokers are urged to swap cigarettes for vapes in a ***"Swop to Stop Scheme."***

### GOVERNMENT INVESTMENT IN NATIONAL SCIENCE AND RESEARCH.

Most publicly funded research on THR is carried out in the US and Europe and exported worldwide. The gap is well demonstrated by compared THR publications per million smokers in countries like New Zealand, US, and the UK to Indonesia and China. Publication rates exceed 200 in the former countries compared to being under 5 in the latter, Sri Lanka is in that category.[76]

Local investment in science has three effects: it ensures that locally relevant research is developed, it leads to the creation of local expertise and building local expertise in science leads to better informed local policies and policy makers. This has been true in all successful areas of health and science.

## C. CREATING INDEPENDENT SCIENCE-BASED CONSUMER GROUPS ABLE TO ADVOCATE FOR THEIR NEEDS.

HIV/AIDS patients and advocates rallied for better policies under the banner of “nothing about us, without us.” This led to changes in government policies that included a commitment to harm reduction and led to better access to antiretrovirals. As a result, millions of people are living longer and healthier lives across LMICs. Similar progress could follow if we had effective new nicotine user groups around the world.

While there are many active nicotine user groups around the world, they have yet to galvanise into a movement with impact. Their advocacy to highlight that tobacco-related deaths can be prevented, according to this study, is a much-needed element.

The wide support for harm reduction as a key public approach to addressing several major health issues-from alcohol and drugs, to HIV/AIDS and tobacco, suggests that Sri Lankan based government or non-government organisations and consumer groups could play important roles within and beyond its own borders, where the start of understanding and support for harm reduction is still rudimentary.

For drug harm reduction, in Sri Lanka the NGO **Harm Reduction International (HRI) works** on drug policy and harm reduction, advocating for the rights of people who use drugs.[77] The **National Dangerous Drugs Control Board (NDDCB)** implements various harm reduction strategies, including needle and syringe exchange programs and opioid agonist therapy.[78]

For the prevention and control of HIV, the **National STD/AIDS Control Programme (NSACP)** government body coordinates the national response to sexually transmitted infections, including HIV/AIDS. They provide a range of services such as treatment, care, and prevention programs.[79] Another group, **Lanka Plus**, is a non-profit organization dedicated to the welfare of people living with HIV/AIDS. They offer support services, awareness programs, and financial aid for affected individuals.[80]

In tobacco control, **The National Authority on Tobacco and Alcohol (NATA)** is responsible for implementing tobacco control policies and promoting public health initiatives to reduce tobacco use.[81] Other NGOs, such as the **Sri Lanka Medical Association (SLMA)** actively participates in tobacco control efforts, advocating for policies and conducting awareness campaigns.[82]

Although these organizations play crucial roles in addressing the health impacts of drugs, HIV, and tobacco in Sri Lanka, there is still a gap in the use of harm reduction methods in tobacco control, as encouraged in Article 1(d) of the FCTC.

# 8. About the Authors

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Dr. Yach is a former employee of the World Health Organization and of PepsiCo.
He received his MBChB from the University of Cape Town in 1979 and his MPH from Johns Hopkins School of Public Health in 1985. In 2007, he received an honorary DSc from Georgetown University. For several years Yach led major national epidemiological initiatives in South Africa. Yach then served under Director-General Gro Harlem Brundtland, as a cabinet director where he worked on the WHO Framework Convention on Tobacco Control and the Global Strategy on Diet and Physical Activity. He led global health at Yale School of Public Health and then at the Rockefeller Foundation before becoming SVP for Global Health and Agriculture Policy at PepsiCo. After 5 years developing and leading the Vitality Institute for Prevention in New York, he founded and led the Foundation for a Smoke Free World. Currently Yach is an independent global health consultant focused on ending smoking, supporting mental health and promoting healthy diets. He has served on advisory boards of the World Economic Forum, Clinton Global Initiative, and Wellcome Trust.

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A full professor of internal medicine at the University of Catania with a specialist role as a respiratory physician, clinical immunologist, allergist and rheumatologist, Polosa is also the founder of the Center for Tobacco Research at the University of Catania, where contracted research staff conduct high-profile clinical and behavioural research. The focus of his academic research has been historically centred upon the investigation of mechanisms of inflammation, biomarkers of disease activity, and novel drug target discovery in respiratory medicine (asthma, COPD, rhinitis) and clinical immunology (allergic and autoimmune diseases). This has culminated in the participation of his research group in large EU-funded Pan-European research consortia. Nonetheless, over the last 15 years, his main research interest has progressively shifted in tobacco-related diseases, smoking prevention and cessation, tobacco harm reduction and e-vapor products.

More specifically, he has been involved in the behavioural, clinical, physiological and toxicological evaluation of e-cigarettes for over 10 years. He was the project lead of the first RCT in the world about effectiveness and tolerability of e-cigarettes (the ECLAT study), he is the most prolific author in the field of e-cigarettes, according to recent bibliometric research. He is a member of the Scientific Committee of LIAF (Italian Anti-Smoking League) and of INNCO (International Nicotine Consumer Organization). Already national coordinator for the Italian Working Group on electronic cigarettes and e-liquids, he has been elected convenor for the European Working Group on requirements and test methods for emissions of electronic cigarettes within the European Committee for Standardization (CEN/TC 437).



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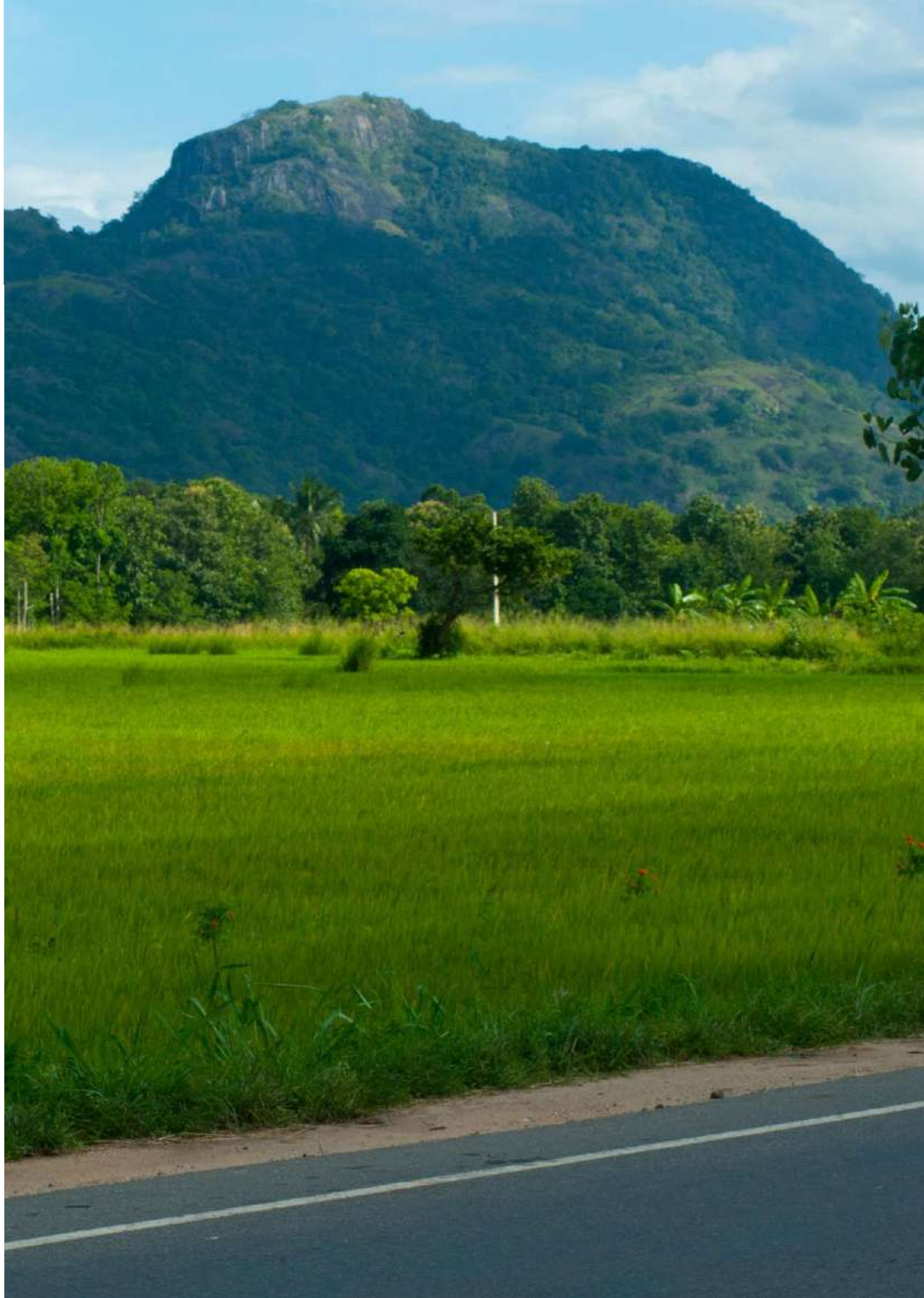

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**PREVIOUS REPORTS ARE AVAILABLE AT:**

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